Page 17:

- line 1: replace "through out" with "throughout".
- line 16: replace "one or many" with "one of many".

Page 19:

- line 18: replace "13" with "14".
- line 25: insert the following paragraph:

"This is an example of how this model may work: Start at the top node. There is a rule that produces the constituents below. Record this rule. Pick the leftmost of the children. If this node does not have children, then visit its sibling to the right. If there is no sibling go up to the parent and visit the parents right sibling. Keep going up and to the right until an unvisited node is found. If all nodes have been visited then we are done. For any node not visited, record the rule and recurse. (This is much easier to describe using code.) This is what is meant by top-down and left to right. This produces a unique representation of the tree."

Page 20:

- line 8: remove " "all found useful…", "all" is a subject post-quantifier, In".
- line 9: after "guidelines" ", insert " "all" is a subject post-qualifier. The structure of "all found useful the guidelines" "
- after line 11: insert the following paragraph:

"An APSG is similar to a CFG in that there are rules that look like CFG rules. But an APSG rule can examine the pieces to decide if it is going to put them together, and it determines and labels the syntactic relation between the children. Because of this, one can have multiple rules that represent VP -> NP VP. This multiple rules can build different syntactic relationships."

- line 19: after "There are", please insert "generally considered to be".

Page 24, line 22: replace "However, because" with "Because".

Page 25, line 23: replace "nodes I" with "nodes *i*".

Page 30, line 8: insert "of" between "type" and "deer".

Page 32, lines 15-16: delete all text of lines 15-16 and replace with " "syntactic history," and "modifying headwords." "

Page 35:

- line 5: before "and", insert " "syntactic biagrams", ".
- line 7: remove "(including modifying headwords)".
- line 16: replace "syntactive" with "linguistic".

Page 36:

- line 12: replace "sl(n_X)" with "sh(n_X)".
- before line 16: inserted this paragraph:

"Those of ordinary skill in the art understand how to generalize these formulas to one child or to three or more children. In addition, there are well-known techniques for converting a ternary (or higher) rule into a set of binary rules."

- line 22: replace "change" with "modification".

Page 37:

- line 18: after "function." insert "In the exemplar, the headwards can also be replaced by their lemmas."
- line 23: after "conditions." insert "Of course, more or less sentences could be used. The more sentences used, the higher the accuracy of the probabilities. In addition, there are many known techniques for dealing with insufficient training data."

Page 39:

- line 10: replace "is intransitive and cannot take" with "is rarely transitive and rarely takes".
- line 19: replace "no" with "very few".
- line 21: replace "zero" with "much less than Tree 96 of Fig. 5b.

Page 43, between lines 10 and 11, insert the following paragraph:

"This example helps explain "topicalization." Start, for example, with the phrase "I eat nematodes." The object of the verb, nematodes, can be put before the subject. This leads to "Nematodes I eat." The movement of the object is called topicalization, and hence the rule name."

Page 44, replace Table 4 with this new Table 4:

Phrase Level	Rule Name	Rule			Level Description
1	VERBtoVP	VP(1) →	VERB(PL_Verb_Max)		Create a VP
2	PredAdj	VP(2) →	VP(1)	AJP(PL_AJP_Max)	Add post modifiers
	VPwNPr1	VP(2) →	VP(1)	NP(PL_NP_Max)	
	VPNull2	VP(2) →	VP(1)		
3	Perfect	VP(3) →	VP(1)	VP(2,3)	Add "have" and quantifiers
	SubjPQuant	VP(3) →	NP(PL_NP_Max)	VP(2,3)	
	VPNull3	VP(3) →	VP(2)		
4	VPwNPl	VP(4) →	NP(PL_NP_Max)	VP(3)	Add subject
	SubjectAJP	VP(4) →	AJP(PL_AJP_Max)	VP(3)	
	VPNull4	VP(4) →	VP(3)		
5	InvertAJPwS	VP(5) →	AJP(PL_AJP_Max)	VP(4)	Add modifiers to VPs that have a subject
	Topicalization	VP(5) →	NP(PL_NP_Max)	VP(4)	
	VPNull5	VP(5) →	VP(4)		

Page 45:

- lines 8, 9, and 12: in each line, replace "PL_Max" with "PL_XP_Max".
- line 17: replace "saem segtype is" with "same segtype as".
- line 18: delete "and".
- line 19: replace "then" with "the".

Page 46:

- move "Fig. 6b shows a parse tree 110 representing a parse of this sentence." on line 13 to between lines 9 and 10.
- lines 10-12: replace "VpwNul" with VPwNPl"; replace "transition null" with "transition 114"; replace "seond constituend" with "second constituent"; insert "116" between constituent" and "has PL2"; replace "transition first." with "transition."; remove "Trans 114 to trans'."

Page 47:

- line 4: before "Penn Tree Bank", insert "The".
- lines 10-11: remove "This induction precludes null transitions for two reasons."
- lines 12-17: replace the entire text of these lines with the following paragraph:

"There is no clear hierarchy to the supplied bracketing annotations. Because of this, there is no obvious way to describe a hierarchy by defining in what order modifiers are to be attached to

the head. Because there is not hierarchy, there is not place to put null transitions."

Page 48:

- line 17: replace "partser" with "parser".
- line 18: replace "time s" with "times" and replace "of time it" with "of times it".

Page 51, between line 8 and 9, insert the following paragraphs:

"Perhaps, this example will better illustrate. Suppose the kernel phrase is "The boy ate the banana." If so, then:

- Perfect: "The boy had eaten the banana."
- Progressive: "The boy was eating the banana."
- Passive: "The banana was eaten by the boy."
- One can combine all these together: "The banana had been being eaten by the boy."

In English, the Passive marking is closest to the verb, followed by the Progressive, followed by the Perfect. You can not say: The banana been being had eaten by the boy."

Page 52, line 23: replace "parser's" with "parser".

Page 53:

- lines 19 and 20: replace "*Topicalization*" with "Topicalization".
- line 20: replace "VPwObject" with "VPwNPp".
- line 21: replace "VpwObject" with "VPwNPp".

Page 54, line 12: replace "it is" with "its".

Page 55, replace the text of lines 14-16 with the following paragraph:

"Similarly, Formula 3 may be simplified because the ranking is not directly determined by what the syntactic history is, versus its effects on the structure."

Page 56:

- line 8: remove ",yields this".
- line 14: remove "the".
- line 15: replace "simplify this to be" to "be simplified to".

Page 57:

- before line 5: please insert "In addition, the lemma of the headword can be used in place of the headword."
- line 7: replace "products" with "product".

Page 58, line 12: replace "a measure of" with "measures".

Page 62, line 5: before "In other", insert "Those of ordinary skill in the art can use formula 2 directly, or any simplification thereof."

Page 64:

- remove lines 1 and 2.
- after "Probability", insert "or by using formula 2 directly, or any simplification thereof."

Page 66, between lines 16 and 17, please insert the following paragraphs:

"One can eat: bananas, apples, pears, peaches, plums, apricots. We could group these all together into a group FRUIT. In the same way, other thing can be grouped together, such as vegetables, fluids, meat, etc. Therefore, instead of dealing with hundreds of words, we can replace them with tens of clusters.